

橐吾属的分类系统

刘 尚 武

THE TAXONOMIC SYSTEM OF THE GENUS *LIGULARIA* (L.) CASS.

Liu Shang-wu

橐吾属是菊科 (*Compositae*) 中的一个属, 全世界约有 130 种, 主产亚洲温带地区, 仅少数几个种分布至欧洲。我国有 111 种, 大部分种类产西南地区。本属依据形态特征分为 6 个组。

橐吾属 (菊科, 千里光族—千里光亚族)*

Ligularia Cass. in Bull. Soc. Philom. 1816: 198. 1816, non Duval 1809. — *Senecillis* Gaertn. De Fruct. et Sem. 2: 453, tab. 173. 1791. — *Erythrochaete* Sieb. et Zucc. in Abh. Akad. Munch. 4: 188. 1846. — *Senecio* Sect. *Ligularia* Benth. in Benth. et Hook. f. Gen. Pl. 2: 449. 1873, excl. *Farfugium*. — *Hoppea* Reinchb. in Flora 7: 254. 1824, non Willd. 1801. — *Cyathoccephalum* Nakai in Bot. Mag. Tokyo 29: 11. 1913. — *Ligularia*

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* 本属拉丁学名依据国际植物命名法规 (蒙特利尔) 为保留名。

subgen. *Ligularia* Pojark. in Fl. URSS 26 : 797. 1961.

属模式: 橐吾 *L. sibirica* (L.) Cass.

组 1. 伞房组

Sect. 1. *Corymbosae* (Franch.) Hand.-Mazz. in Bot. Jahrb. 69 : 107. 1938, p.p.; Pojark. in Fl. URSS 26 : 798. 1961. — Senecio groupe *Ligularia* B. *Eu-ligularia* 3. *Corymbosi* Franch. in Bull. Soc. Bot. France 39 : 290. 1892. — *Ligularia* Sect. *Eu-ligularia* Ser. 3. *Corymbosae* Kitam. Comp. Jap. 3 : 197. 1942. — Sect. *Ligularia* Koyama in Mem. Fac. Sci. Kyoto Univ. Ser. Biol. 2 : 42. 1968, p. p.

Plantae virides, saepe piliferae. Nervus palmatus vel pinnatus. Calathidia radiata vel discoidea, in corymbum vel duplo corymbum disposita, raro solitaria. Phyllis involucris inter se liberis. Bractae lineares raro ovatae.

Typus sectionis : *L. calthifolia* Maxim.

Species 38 in China.

系 1. 伞房系

Ser. 1. *Calthifoliae* S. W. Liu, ser. nov.

Folia reniformis, palmatinervia, 3—9-costata. Calathidia majora, cum ligulis 5—12cm diam. Involucro campanulato, late campanulato vel hemisphaerico, phyllis dense imbricatis, dorso expressis, bilateraliter porcatis, margine membranaceis. Pappi brunnei.

Typus seriei : *L. calthifolia* Maxim.

系 2. 小头系

Ser. 2. *Retusae* S. W. Liu, ser. nov.

Folia reniformia, raro ovata, palmatinervia, 3—5-costata. Calathidia minora, cum ligulis non ultra 4cm diam. Involucro anguste cylindrico, campanulato, turbinato vel hemisphaerico, phyllis sparsim imbricatis, dorso eporcatis.

Typus seriei : *L. retusa* DC.

系 3. 羽脉系

Ser. 3. *Lapathifoliae* S. W. Liu, ser. nov.

Folia ovata vel ovato-lanceolata, pinnatinervia. Calathidia minora, Involucro campanulato vel turbinato.

Typus seriei: *L. lapathifolia* (Franch.) Hand.-Mazz.

组 2. 线苞组

Sect. *Stenostegia* Pojark. in Fl. URSS 26: 892. 1961, p.p.
—Sect. *Erectae* Koyama in Mem. Fac. Sci. Kyoto Univ. Ser. Biol. 2: 41. 1968, syn. nov.

Plantae virides, piliferae, collum rhizomatis dense brunne-olanatum Folia sagittata vel ovata, pinnatinervia. Calathidia radiata, in corymbum, duplo corymbum vel thyrsum disposita, raro solitaria. Involucro anguste cylindrico vel cupuliformi, phyllis inter se liberis. Bractee lineares.

Typus sectionis: *L. narynensis* (C. Winkl.) O. et B. Fedtsch.

Species 5 in China.

组 3. 花草组 新组

Secte 3. *Scapicaulis* S. W. Liu, sect. nov.

Plantae virides, piliferae. Caulis scapiformis. Collum rhizomatis dense albo-villosum. Folia omnino basilaria, ovata vel ovato cordata, pinnatinervia. Calathidia radiata in racemum vel paniculato-racemum disposita. Involucro campanulato, phyllis inter se liberis. Bractee lineares.

Typus sectionis: *L. vellerea* (Franch.) Hand.-Mazz.

Species 2 in China.

组 4. 橐吾组

Sect. 4. *Ligularia*, Pojark. in Fl. URSS 26: 801. 1961, Koyama in Mem. Fac. Sci. Kyoto Univ. Ser. Biol. 2: 41. 1968, p. p. —Senecio groupe *Ligularia* B. *Eu-ligularia* 1. *Racemosi* Franch. in Bull. Soc. Bot. France 39: 289. 1892. —Sect. *Eu-ligularia* Nakai in Bot. Mag. Tokyo 31: 124. 1917, Kitam. Comp. Jap. 3: 188. 1942, excl. ser. *Corymbosae*. —*Ligularia* 2.

Racemosae Hand.-Mazz. in Bot. Jahrb. 69: 117. 1938, p. p.

Plantae virides, saepe piliferae. Nervus palmatus vel pinnatus. Calathidia radiata vel discoidea, in racemum vel paniculato-racemum disposita, raro solitaria. Phyllis involucri inter se liberis. Bractee ovatae usque lineares.

Typus sectionis: *L. sibirica* (L.) Cass.

Species 50 in China.

系 1. 麝香系

Ser. 1. *Ligularia*, Koyama in Mem. Fac. Sci. Kyoto Univ. Ser. Biol. 2: 44. 1968, p. p. — Ser. *Racemosae* Kitam. Comp. Jap. 3: 190. 1942, p. p.; Pojark. in Fl. URSS 26: 806. 1961.

Folia reniformia vel cordato-reniformia, palmatinervia 3—9-costata. Involucrum campanulatum vel turbinatum, raro cupuliforme. Pappus corollam disci aequens.

Typus seriei: *L. sibirica* (L.) Cass.

系 2. 短梗系

Ser. 2. *Speciosae* Pojark. in Fl. URSS 26: 887. 1961. — Ser. *Racemosae* Kitam. Comp. Jap. 3: 190. 1942, p. p. — Ser. *Ligularia* Koyama in Mem. Fac. Sci. Kyoto Univ. Ser. Biol. 2: 44. 1968, p. p.

Folia reniformia vel hastata, palmatinervia, 3—9-costata. Involucrum anguste cylindricum usque campanulatum. Pappus tubum corollae disci aequens vel brevior.

Typus seriei: *L. fischerii* (Ledeb.) Turcz.

系 3. 有翅系

Ser. 3. *Racemiferae* (Pojark.) S. W. Liu, comb. nov.

Sect. *Stenostegia* Ser. *Racemiferae* Pojark. in Fl. URSS 26: 893. 1961.

Folia ovata, ovato-cordata vel sagittata, pinnatinervia, petiolo basilari plus minusve alato. Involucrum campanulatum, late campanulatum, raro turbinatum vel hemisphaericum. Pappus corollam disci aequens raro paulo brevis.

Typus seriei: *L. jaluensis* Kom.

系4. 单头系

Ser. 4. *Monocephalae* (Nakai) Kitam. Comp. Jap. 3: 189. 1942; Koyama in Mem. Fac. Sci. Kyoto Univ. Ser. Biol. 2: 41. 1968. — *Ligularia* sect. *Monocephala* Nakai in Bot. Mag. Tokyo 31: 123. 1917.

Folia hastata, pinnatinervia. Calathidium solitarium, majus, circ. 6cm diam. Involucro late campanulato. Pappus corollam disci aequens.

Typus seriei: *L. jamesii* (Hemsl.) Kom.

组5. 合苞组

Sect. 5. *Cyathocephaium* (Nakai) Kitam. Comp. Jap. 3: 185. 1942; Koyama in Mem. Fac. Sci. Kyoto Univ. Ser. Biol. 2: 48. 1968. — *Cyathocephalum* Nakai in Bot. Mag. Tokyo 29: 11. 1915. — Sect. *Senecillis* ser. *Schmidtianae* Pojark. in Fl. URSS 26: 850. 1961.

Plantae glauco- vel coeruleo-virides, glabrae. Folia basilaria erectae, caulina sessilia, evaginata, pinnatinervia. Calathidia in subcorymbum vel racemum disposita. Involucro campanulato vel cupuliformi, phyllis inter se connatis, apice 2—5 dentatis. Pappus tubum corollae disci aequens vel absens.

Typus sectionis: *L. schmidtii* (Maxim.) Makino

Species 2 in China.

组6. 蓝灰组

Sect. 6. *Senecillis* (Gaertn.) Kitam. Comp. Jap. 3: 187. 1942; Pojark. in Fl. URSS 26: 893. 1961, excl. Ser. *Schmidtianae* — Sect. *Senecillis* Gaertn. De Fruct. et Sem. Pl. 2: 453. t. 173. 1791.

Plantae glauco-vel coeruleo-virides. Folia basilaria erectae, caulina sessilia evaginataque, pinnatinervia. Calathidia in racemum vel paniculato-racemum disposita. Involucro campanulato vel turbinato, phyllis inter se liberis. Pappus corollam vel tubum corollae disci aequens.

Typus sectionis: *L. glauca* (L.) Hoffm.

Species 14 in China.

1. 康定囊舌 新种 图1

Ligularia kantingensis S. W. Liu, sp. nov.

(Sect. *Corymbosae*). Herba perennis, 25—30cm alta. Radices tenues, breviter piliferae. Caulis erectus, superne cum inflorescentia albo-araneosus, inferne glabrus, basi 1.5—2mm diam., dense vetustis petiolatis persistentibus vestitus. Folia fasciculata (basilaria) inferioraque petiolata, petioli usque 13cm longi, glabri, basi paulo ampliati, laminae reniformes vel ovato-cordatae, 2—3.3cm longae, 4.5—6cm latae, apice rotundatae, raro emarginatae, margine regulariter denticulatae, dens apice cartilagineus, sino lato longitudine $1/3$ laminae partem aequanti, nervus palmatus subtus prominens, illa caulina 1, minora, petiolata, petioli tenues, ampliatio-vaginati. Calathidia radiata, 4—5, in corymbum disposita. Bracteae cymbiformes, 1.6—4cm longae, 0.6—1.2cm latae, sub integrae, glabrae. Pedunculi 3—9cm longi. Bracteolae lineares, usque 1.2cm longae. Involucrum campanulatum 8—10mm longum, in oris 10—12mm, atum, phylla 10—12, biseriata, lanceolata, 1.5—2mm lata, glabra, apice acuminata, fusca, saepe curvata, interiora margine membranacea. Flosculi radii ligulati, flavi, ligulae lineares, 11—13mm longae, circ. 1mm latae, apice lobatae, tubus circ. 5mm longus. Flosculi disci numerosi, tubulati, 6—7mm longi, tubus limbum aequens. Pappus corollam disci aequens. Achaenia ematura, glabra.

Haec species *L. retusae* DC. affinis, sed planta humili, caulibus albo-puberulis, involucro glabro differt.

Sichuan: Kanting, grass slopes, X. L. Jiang et J. H. Xiong (蒋兴林、熊济华) 36535 (Typus in SZ) (four sheets).

本种与黑毛囊舌 *L. retusa* DC. 相近, 但植株矮小, 茎被白色柔毛, 总苞光滑而不同。后者植株高而粗, 茎及总苞被黑色有节柔毛。

2. 梨叶囊舌 新种 图2

Ligularia pyrifolia S. W. Liu, sp. nov.

(Sect. *Corymbosae*). Herba perennis 20—25cm alta. Radices dense pilifera. Caulis erectus, praeter inflorescentiam glaber, basi 2.5—3mm diam. dense vetustis petiolatis vestitus. Folia fasciculata inferioraque petiolata, petioli usque 16cm longi, glabri, vaginati, laminae ovatae vel ovato-cordatae, 5—7.5cm longae, 4—6.3cm latae, apice caudato-acuminatae, margine regulariter aculato-dentatae, basi rotundatae vel cordatae, utrinque glabrae, nervus palmatus, vena lateralis dichotoma utrinque prominens, illa caulina 1—2, canformia cum inferioribus, sed parva, petiolata ampliata-vaginataque. Calathidia 3—4, radiata, in corymbum disposita. Bracteis lineari-lanceolatis, 1—1.5cm longis, integris, basi paulo ampliatis. Pedunculi 1.3—1.4cm longi, superne brunneo-pilosi. Bracteolae usque 15, lineari-lanceolatae, 10—14mm longae, circ. 1.5mm latae, integrae, glabrae. Involucrum late campanulatum, 1.6—2cm longum, circ. 1.5cm latum, phylla 10—12, biseriata, lineari-lanceolata vel lanceolata, 2—4mm lata, apice acuta, margine brunnea. Flosculi radii ligulati, 6—10, flavi, ligula lanceolata, 2—2.5cm longa, usque 6mm lata, apice acuminata, 6—7-brunneostriata, tubus 6—7mm longus. Flosculi disci tubulati, numerosi, 10—11mm longi, tubis circ. 4mm longis. Pappus brunneolus corollam disci aequens. Achaenia ematura, glabra.

Haec planta inter species Sectionis Corymborum folio ovato, apice caudato-acuminato, calathidiis 3—4 in laxo corymbum dispositis, involucri late campanulato, circ. 1.5cm lato, ligula lanceolata, 2—2.5cm longa, usque 6mm lata, apice acuminata, 6—7-striata, bracteolis numerosis valde recedens.

Yunnan: Jiag, Tung, under mixed forest near steam, 31 X 1939, M. K. Li (李鸣岗) 1088, Ibid. loc. on rock surface moist, alt. 1600m. 29 VIII 1940, M. K. Li (李鸣岗) 3443 (Typus in KUN).

本种在伞房组 Sect. *Corymbosae* 的种中是很特殊的, 叶卵形, 先端尾状渐尖, 头状花序 3—4, 呈疏伞房状, 总苞宽钟形, 宽约 1.5 厘米, 舌状花的舌片披针形, 长 2—2.5 厘米, 宽至 6 毫米, 先端渐尖, 具 6—7 条脉纹, 小苞片多数。

3. 南川橐吾 新种 图8

Ligularia nanchuanica S. W. Liu, sp. nov.

L. levellei (Vant.) Hand.-Mazz. in Bot. Jahrb. 69: 128, 1938, quoad Hwang 25.

(Sect. *Ligularia*). Herba perennis, usque 112cm alta. Caulis erectus, superne dense flavo-piliferus, saepe purpureus, inferne glabra, basi circ. 6mm diam. Folia fasciculata inferioraque petiolata, petiolo 30—40cm longo, vaginata, vagina 5cm longa, glabra, laminae cordatoovatae vel reniformes, 4—9cm longae, 5—11cm latae, apice rotundatae vel acutae, mucronatae, margine undulato-dentatae, dentis apice cartilagineis, sinus angustus, longitudine $\frac{1}{3}$ laminae partem aequans, lobis basilaris subrotundatis, 14—16cm longis, macrodontis, supra dense breviter pilosae, subtus glabrae, nervus palmatus subtus prominens, illa caulina parva, similes. Inflorescentia paniculato-racemosa usque 35cm longa, basi ramosa, rami usque 18cm longi, dense flavo-pilosi. Bractee lineari-lanceolatae, circ. 2cm longa. Pedunculatis dense flavopilosis 3—9mm longis. Calathidia discoidea, numerosa, bracteolae lineares involucrum aequantes. Involucrum anguste campanulatum, 8—11mm longum, 4—5mm latum, phylla 8, biseriata, lanceolata vel anguste lanceolata, 1.5—3mm lata, apice acuta vel acuminata, margine anguste membranacea, dorso dense breviter flavo-pilosa. Flosculi radii absentes. Flosculi disci numerosi albi (e nota), 7—8mm longi, involucrum paulo superantes, tubis circ. 3mm longis. Pappus, brunneolus, corollam paulo brevior. Achaenia ematura, circ. 4mm longa, glabra.

Species *L. levellei* (Vant.) Hand.-Mazz. affinis, sed planta omnino flavo-pilifera, involucro anguste campanulato, phyllis breviter flavo-pilosis differt.

Sichuan: Nanchuan, 8 VIII 1926, C. Y. Hwang (黄昌裕) 25, Ibid. loc. Jing-Shan, alt. 1320—2040, 18 VIII 1957, J. H. Xiong et Z. L. Chou (熊济华, 周子林) 92810 (Typus in PE), 93187, 93871.

本种与贵州橐吾 *L. levellei* (Vant.) Hand.-Mazz. 相近, 但全株被黄褐色毛, 总苞狭筒形, 总苞片被黄褐色短毛而不同。后者全株光滑, 总苞钟形。

Handel-Mazzetti 在贵州橐吾的讨论中曾指出产四川南川的 Hwang 25 标本花序密被黄色毛与该种不同。我见到了那一号标本。它除了略小些之外, 其它特征与南川的另一些标本完全相同, 而确与贵州橐吾不同, 因此分立为新种。

4. 阔柄橐吾 新种 图 4

Ligularia latipes S. W. Liu, sp. nov.

(Sect. *Ligularia*). Herba petennis, usque 70cm alta. Caulis erectus, superne purpureus, dense pilosus, pilis brevibus nigro-purpuris, inferne glaber, basi 5—8mm diam. Folia basilaria petiolata vaginataque, petioli 4—8cm longi, late alati alae circ. 2cm latae, integrae vel denticulatae, vagino usque 11cm longo, 4cm lato, integro vel denticulato, glabro, laminae cordatae vel ovato-cordatae, 3.5—15cm longae, 5.5—11.5cm latae, apice rotundatae, margine sinuato-dentatae, dentibus apice cartilagineis, basi cordatae, lobi bilaterales rotundati, nervus pinnatus, subtus prominens; illa caulina parva, ovata, breviter petiolata, amplo-vaginata. Inflorescentia paniculato-racemosa, laxa, ramosa, rami inferiori cum 3—4-calathidiis, superiori cum 1-calathidio. Bracteae in medio pedunculi, lineares, bracteolis subulatis, involucre brevioris. Calathidia radiata, (e nota, ligulata), numerosa. Involucrum anguste campanulatum vel cylindricum, 6—8mm longum, 4—5mm latum, phylla 5—8, biseriata, oblonga, apice obtusa vel triangulata, albociliata, margine membranacea, dorso purpurea, glabra. Flosculi radii ligulati (ignoti). Flosculi disci 5—10, tubulosi, 8—9mm longi, tubo limbo paulo longiore, limbus campanulatus. Pappus rufescens, 6—7mm longus, corolla flosculi disci brevior. Achaeia anguste oblanceolata, fusca, 5—6mm longa, glabra, apice constricta.

Species *L. pterodontae* Chang affinis, sed inflorescentia dense breviter pilosa, involucre anguste campanulato, tubis

flosculi disci limbo longioris, pappis corolla disci paulo brevioris, alatis petioli subintegris differt.

Sichuan: An Xian, 6 IX 1952, W. K. Hu (胡文光) 13375, Mao Wen, alt. 2600m., 19 VIII 1975, Sichuan Veget. Exped. (四川植被考察队) 8796 (Typus in CDBI), (ligulae flavae).

本种与宽翅橐吾 *L. pterodonta* Chang 接近, 但花序密被短毛, 总苞狭钟形, 管状花的管部长于檐部, 冠毛较管状花花冠稍短, 叶柄的翅近全缘而不同。

5. 君范橐吾 新种 图5

Ligularia lingiana S. W. Liu, sp. nov.

Herba perennis, usque 120cm alta, glauco-viridis. Caulis erectus, glaber, basi 3—4mm diam. Folia fasciculata et inferiora ignota, illa media caulina sessilia evaginataque, laminae oblongae vel ellipticae, 10—15cm longae, 6—10.5cm latae, apice rotundatae, raro mucronatae, margine sinuolato-denticulatae, basi paulo attenuatae, semiamplexicaules, coriaceae, glabrae, nervus pinnatus, reticulc manifeste expresso, illa caulina superiora parva, oblonga, apice obtusa vel acuminata, reticulata. Inflorescentia racemosa laxa, usque 15cm longa. Calathidia 6, discoidea, nutantes. Bractee submembranaceae, ovato-oblongae vel lanceolatae, 2—5cm longae, 1.5—2.5cm latae, superne minora pedunculo longiores, apice acuminatae, manifeste reticulatae. Pedunculi ad 2cm lonei, saepe curvati. Involucrum campanulatum, basi subtruncatum, glabrum, 10—12mm longum, circ. 10mm latum, phylla 8—10, biseriata, oblonga vel lanceolata, apice acuta, fusca, interiora latiora, circ. 5mm lata. Flosculi omnino tubulosi, flavi, involucro paulo longiores, 6—7mm longi, tubo circ. 2mm longo. Pappus albus corollam aequens. Achaenia alba, oblonga, 4.5—5mm longa, 4-costata, glabra.

Species *L. brassicoidi* Hand.-Mazz. affinis, sed bractea submembranacea, ovato-oblonga usque lanceolata, 2—5cm longa, 1.5—2.5cm lata, manifeste reticulata, calathidiis discoideis, involucro late campanulato, basi subtruncato, circ. 10mm lato.

deffert.

Sichuan: Muli, The side of forest and shrubby, alt. 3600m, 25 VIII 1978, Q. S. Zhao (赵清盛) 82946 (Typus in SZ).

本种与芥形囊吾 *L. brassicoides* Hand.-Mazz. 最近, 但苞片近膜质, 卵状长圆形至披针形, 长2—5厘米, 宽1.5—2.5厘米, 具明显的网脉, 头状花序盘状, 总苞宽钟形, 基部近平截, 宽约10毫米而不同。后者苞片线形, 头状花序辐射状。

种加词是由我国著名的植物分类学家林镕教授的姓氏而来的, 以此纪念他在植物分类学, 特别是菊科植物分类上的杰出贡献和诲人不倦的崇高精神。

6. 灰苞囊吾 新种 图6

Ligularia chalybea S. W. Liu, sp. nov.

Herba perennis, 35—45cm alta, glauco-viridis. Caulis erectus, superne breviter flavo-piliferus albo-araneosusque, inferne glaber, basi 2—4mm diam. dense vetustis petiolatis vestitus. Folia fasciculata et inferiora petiolata, petiolis 4—11cm longi, alati, ala usque circ. 6mm lata, integra, margine ciliata, laminae ovatae vel ovato-oblongae, raro spathulatae, 7—21.5cm longae, 3—8cm latae, apice obtusae vel rotundatae, margine sparse cartilagineo-denticulatae, vel sinuolatodentatae, basi abrupte contractae vel cuneatae, supra glabrae, subtus ad nervas breviter piliferae, chartaceae, pinnatinervia, reticulo utrinque manifeste prominenti, illa caulina oblonga, 8—13cm longa, usque 5cm lata, apice obtusa vel subacuminata, margine cartilagineodenticulata, basi vaginato-amplexicaules, vaginae extra in nervis breviter piliferae, illa caulina superissime 1, bractescentia, ovato-lanceolata, 4—5cm longa, apice acuminata. Inflorescentia racemosa, usque 13cm longa. Calathidia circ. 17, discoidea. Bractee lineares, ad 15mm longae. Pedunculi 2—4mm longi. Bracteolae lineares. Involucrum turbinatum, 7—9mm longum, phylla 7—8, biseriata, oblonga vel lanceolata, apice obtusa vel acuminata, dorso glabra, submembranacea, chalybea. Flosculi omnino tubulosi, chalybei, (e nota), 4.5—5mm longi, tubo circ. 1.5mm longo. Pappus superne albus inferne

flavescens, corollam disci aequens. Achaenia ematura, cylindrica, glabra.

Species *L. liatroidi* (C. Winkl.) Hand.-Mazz. affinis, sed calathidiis discoideis, involucro glabro, phyllis submembranaceis, chalybeis, tubis flosculi disci limbo $1/3$ longioribus defert.

Sicuan: Muli, on the alpine meadow, alt. 4700m., 4 VIII 1978, Q. S. Zhao (赵清盛) 6421 (Typus in SZ).

本种与缘毛橐吾 *L. liatroides* (C. Winkl.) Hand.-Mazz. 极为相似, 但头状花序盘状, 总苞光滑, 总苞片近膜质, 铁灰色, 管状花的管部长为檐部的 $1/3$ 而不同。后者头状花序辐射状, 总苞片边缘具白色密短缘毛。



图 1. 康定橐吾 *Ligularia kantingensis* S. W. Liu
1. 植株下部; 2. 花序; 3. 外层总苞片; 4. 内层总苞片; 5. 舌状花; 6. 管状花。(阎翠兰绘)



图2 梨叶橐吾 *Ligularia pyrifolia* S. W. Liu
1. 植株; 2. 舌状花; 3. 管状花; 4. 冠毛。(闻翠兰绘)

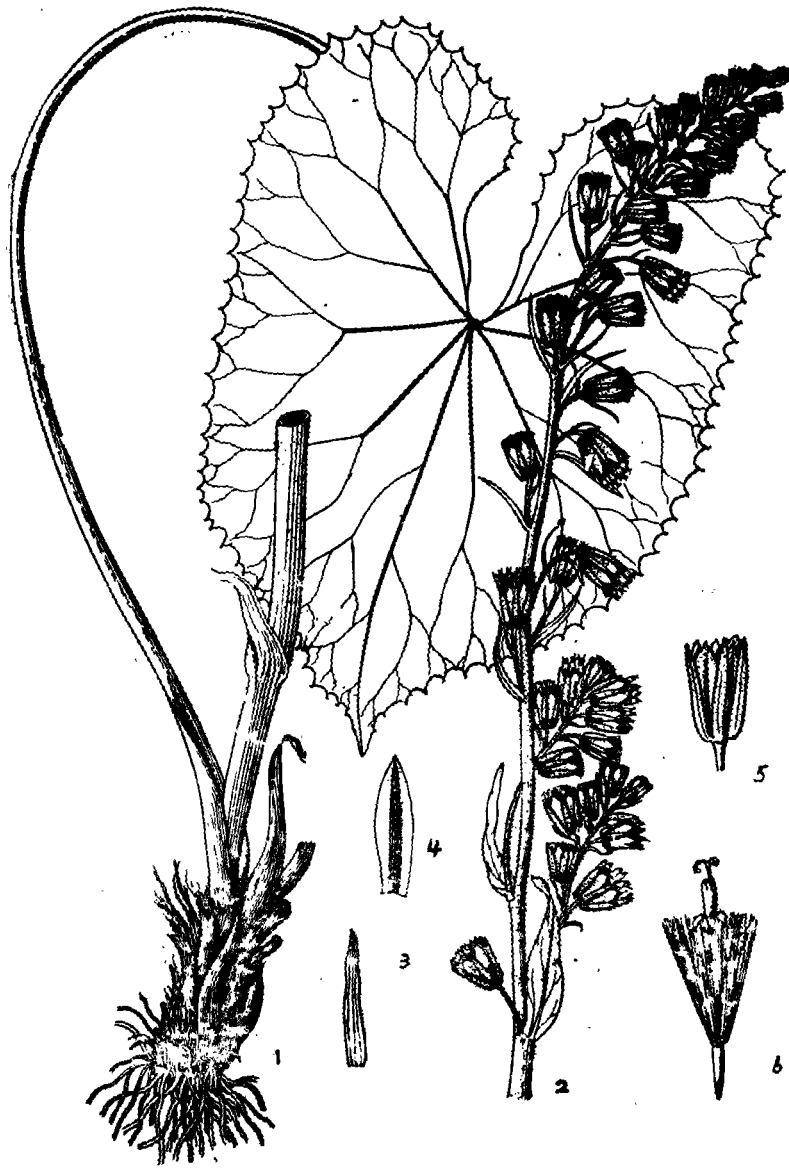


图3 南川橐吾 *Ligularia nanchuanica* S. W. Liu
1. 植株下部; 2. 花序; 3. 外层总苞片; 4. 内层总苞片; 5. 总苞; 6. 管状花。 (阎翠兰绘)

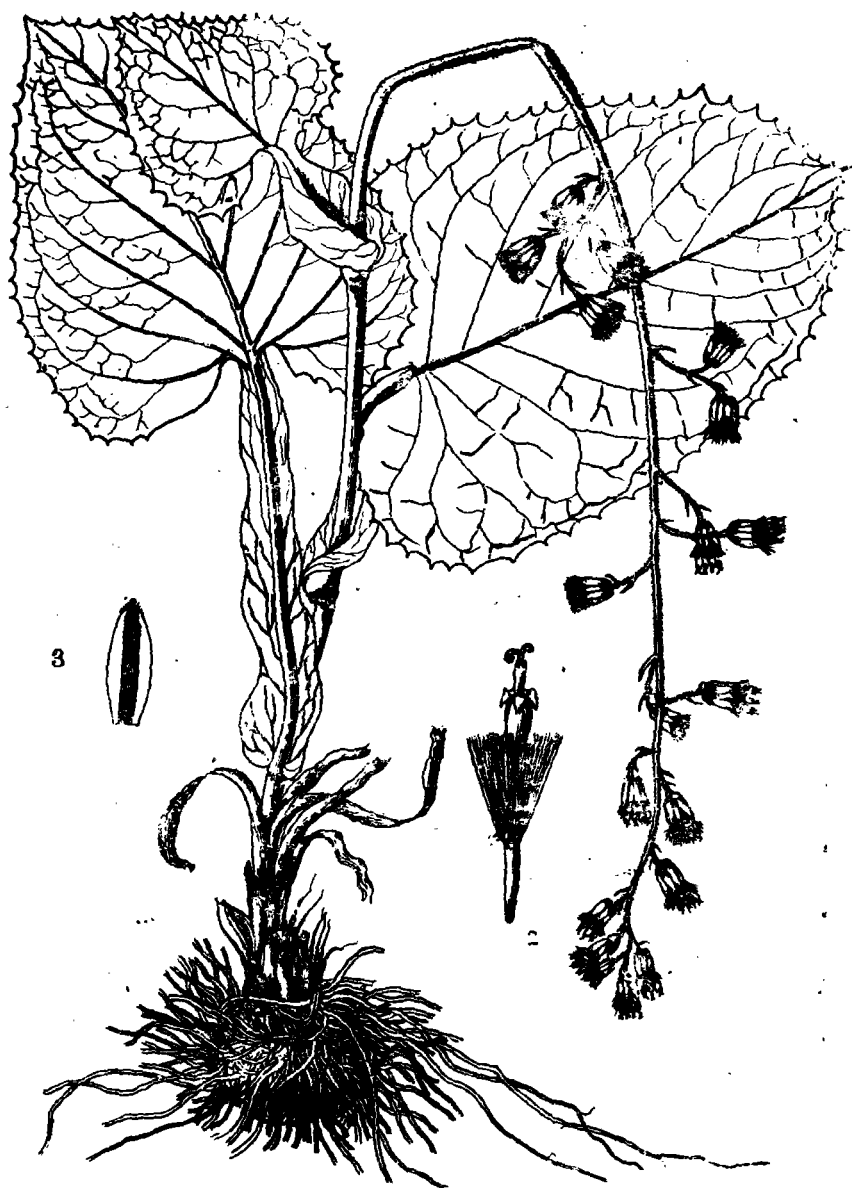


图4 阔柄橐吾 *Ligularia latipes* S. W. Liu
1. 植株；2. 管状花；3. 内层总苞片。（阎翠兰绘）



图5 君范堇苣 *Ligularia lingiana* S. W. Liu
1. 植株; 2. 外层总苞片; 3. 内层总苞片; 4. 管状花。(阎翠兰绘)



图6 灰包菜苣 *Ligularia chalybea* S. W. Liu
1. 植株; 2. 外层总苞片; 3. 内层总苞片; 4. 管状花; 5. 冠毛。 (闻翠兰绘)